

*a*  
What is claimed is:

1. A construction element for use as an underlayment or backerboard comprising:
  - (a) a core having an upper principal surface and a lower principal surface; and
  - (b) an impervious membrane on the lower principal surface of the core; the core including alkaline resistant fibers.
- 5 2. The construction element of Claim 1, the alkaline resistant fibers being chopped reinforcement fibers randomly dispersed in the core.
3. The construction element of Claim 2, the impervious membrane comprising a reinforced polymer membrane.
- 10 4. The construction element of Claim 2, the impervious membrane comprising waterproof paperboard.
5. The construction element of Claim 2, the impervious membrane comprising spunbonded olefin.
- 15 6. The construction element of Claim 2, the impervious membrane comprising an alkaline resistant dense polymer fiber mat.
7. The construction element of Claim 2, the cement core comprising Portland cement and an additive selected from the group consisting of expanded shale, expanded clay, sintered clay, pumice, slag, calcium carbonate, slate, diatomaceous slate, perlite, vermiculite, scoria, volcanic cinders, tuff, diatomite, sintered fly ash, industrial cinders, gypsum, foam beads and glass beads.
- 20 8. A construction element for use as an underlayment or backerboard comprising:
  - (a) a core having an upper principal surface and a lower principal surface;
  - (b) a pervious upper reinforcement material on the upper principal surface of the core;
  - 25 (c) an upper coating in communication with the upper principal surface of the core and the pervious upper reinforcement material; and
  - (d) an impervious membrane on the lower principal surface of the core.
9. The construction element of Claim 8, the impervious membrane comprising a reinforced polymer membrane.
- 30 10. The construction element of Claim 8, the impervious membrane comprising waterproof paperboard.

*a  
WAX*

11. The construction element of Claim 8, the impervious membrane comprising spunbonded olefin.

12. The construction element of Claim 8, the impervious membrane comprising an alkaline resistant dense polymer fiber mat.

5 13. The construction element of Claim 8, the cement core comprising Portland cement and an additive selected from the group consisting of expanded shale, expanded clay, sintered clay, pumice, slag, calcium carbonate, slate, diatomaceous slate, perlite, vermiculite, scoria, volcanic cinders, tuff, diatomite, sintered fly ash, industrial cinders, gypsum, foam beads and glass beads.

10 14. A construction element for use as an underlayment or backerboard comprising:

(a) a cement core having an upper principal surface and a lower principal surface;

(b) a pervious reinforcement layer on the upper principal surface of the core;

(c) a cement slurry binding the reinforcement layer to the upper principal surface of the core; and

(d) a high tensile strength, impervious moisture barrier membrane bound to the lower principal surface of the core.

15. The construction element of Claim 14, the cement core comprising Portland cement and an additive selected from the group consisting of expanded shale, expanded clay, sintered clay, pumice, slag, calcium carbonate, slate, diatomaceous slate, perlite, vermiculite, scoria, volcanic cinders, tuff, diatomite, sintered fly ash, industrial cinders, gypsum, foam beads and glass beads.

16. The construction element of Claim 14, the core comprising Portland cement and alkaline resistant fibers.

25 17. The construction element of Claim 16, the alkaline resistant fibers being chopped reinforcement fibers randomly dispersed in the core.

18. The construction element of Claim 14, the pervious reinforcement layer comprising a fiberglass mesh with an alkaline resistant coating, the fiberglass mesh of the pervious reinforcement layer selected from the group consisting of woven fiberglass and 30 fiberglass skrim.

*at  
cmx*

19. The construction element of Claim 14, the impervious moisture barrier membrane comprising an alkaline resistant dense polymer fiber mat.

20. A method of manufacturing a construction element for use as an underlayment or backerboard comprising the following steps:

5 (a) conveying a sheet of impervious reinforced membrane through a core station; and

(b) depositing at the core station a core material on the impervious reinforced membrane;

the core material including alkaline resistant fibers;

10 the impervious reinforced membrane acting as a carrier sheet.

21. The method of manufacturing according to Claim 20, the alkaline resistant fibers being chopped reinforcement fibers randomly dispersed in the core.

22. The method of manufacturing according to Claim 21, the impervious reinforced membrane comprising a reinforced polymer membrane.

23. The method of manufacturing according to Claim 21, the impervious reinforced membrane comprising waterproof paperboard.

24. The method of manufacturing according to Claim 21, the impervious reinforced membrane comprising spunbonded olefin.

25. The method of manufacturing according to Claim 21, the impervious reinforced membrane comprising an alkaline resistant dense polymer fiber mat.

26. A method of manufacturing a construction element for use as an underlayment or backerboard comprising the following steps:

(a) conveying a sheet of impervious reinforced membrane through a core station;

25 (b) depositing at the core station a core material on the impervious reinforced membrane; and

(c) layering a pervious membrane atop the core material such that the core material is sandwiched between the pervious membrane and the impervious membrane

30 the impervious reinforced membrane acting as a carrier sheet throughout the manufacturing process.

27. The method of manufacturing according to Claim 26, further comprising the step of screeding the core material to reduce the thickness of the core material on the impervious reinforced material.

5 28. The method of manufacturing according to Claim 27, said step of screeding smoothing out an upper surface of the core material.

29. The method of manufacturing according to Claim 26, further comprising the step of compacting the core material on the impervious reinforced membrane.

10 30. The method of manufacturing according to Claim 26, further comprising the step of bathing the pervious membrane in a binding agent prior to layering the pervious membrane on the core material.

31. The method of manufacturing according to Claim 26, further comprising the step of cutting the construction element into panels.

32. The method of manufacturing according to Claim 26, the impervious reinforced membrane comprising a reinforced polymer membrane.

33. The method of manufacturing according to Claim 26, the impervious reinforced membrane comprising waterproof paperboard.

34. The method of manufacturing according to Claim 26, the impervious reinforced membrane comprising Tyvek®.

35. A method of manufacturing a construction element for use as an underlayment or backerboard comprising the following steps:

(a) conveying a sheet of impervious reinforced membrane through the steps of the method of manufacturing;

(b) depositing a core material from a core material hopper to the conveyed impervious reinforced membrane; and

25 (c) screeding the core material on the conveyed sheet of impervious reinforced membrane with a screed;

(d) compacting the core material on the conveyed sheet of impervious reinforced membrane with a compactor;

30 (e) bathing a conveyed pervious reinforced membrane through a bath of cement; and

(f) layering the pervious reinforced membrane on the core material on the conveyed sheet of impervious reinforced membrane; and

(g) cutting the manufactured construction element into panels.

*Add  
P.  
C.M.*